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annually. Here and there on the trees a seed had evidently started a young plant, and it was remarkable to note that these cases were always on the under side of the branches, the young plant growing straight down. As these branches were very smooth, it becomes a problem how the seed attach themselves to this under surface so as to remain and germinate. Some of the young plants which Mr. Meehan exhibited were taken from dead branches, as well as from living ones, showing the plant's true epiphytal character.

On the Age and Origin of certain Quartz Veins.—Prof. PERSIFOR FRAZER, Jr., exhibited a fragment of hornblendic dolerite which was found in York County, intersected by a vein of quartz. The alteration of the former along the planes of contact was indicated by bands of half an inch or more of darker color than the rest of the specimen. Within the vein of quartz are observed many fragments—some of them angular, of nearly the same appearance as the altered portions of dolerite. This occurrence is interesting in view of the light which it throws on the origin of some quartz veins. Had the quartz been thrust up from below in a molten condition (as some geologists have believed possible), its combination with the basic constituents of the neighboring dolerite would have followed as a matter of course. The small fragments would have dissolved in it, and there would have been no sharp line of demarcation between the two rocks.

Even had the gelatinous silica (orthosilicic acid) been maintained at a high temperature during its transition into quartz, it seems almost certain that it would have exerted a considerable chemical action upon the trap, producing compounds richer in silica, while the smaller fragments imbedded in it would have left traces of their former position in colored spots throughout the vein. The infiltration was probably slow, and the solution at a moderate temperature, but chemical action progressed slowly through the contact walls, resulting in their partial alteration.

In connection with this subject he called attention to a paper by Lowthian Bell on the "Whin-Stones," or traps of the north of England (Proc. Royal Soc.), replete with analyses, and in which the author advances hypotheses as to the depths to which alterations of sedimentary strata by intrusive rocks takes place, and as to the volatility of the generally supposed unvolatile substances, which are remarkable, and, from the high authority of Mr. Bell in iron metallurgy, worthy of attention.

Mineralogical Notes.—Dr. GEO. A. KOENIG said, that, having been engaged upon the investigation of the minerals occurring at Magnet Cove, Arkansas, for some time past, he desired to give a preliminary notice of some of his results, reserving the details for a memoir, which he hoped to place before the Academy at a future date. Some of his observations were communicated to the National Academy of Science at its last meeting, but have not been published. From a mineral, resembling schorlomite very much as to its physical properties, he obtained in the place of titannic acid a *white oxide*, which differed from the latter in a number of important reactions very considerably. In the fragment analyzed, it was contained to the amount of 30 per centum. However, in this, there is comprised a certain quantity of titannic acid. Owing mostly to the want of material, he had, hitherto, been unable to effect a satisfactory separation. Some of the reactions are so peculiar, that the existence in it of a *new metal* is highly probable. However, the nature of titannic acid itself, with the study of which he was now engaged as a preliminary, is yet so little understood, that he refrained from a positive statement for the present. From the same mineral, from schorlomite, and from garnet, he had been able to separate vanadic acid in amounts varying between 0.5 per cent. and traces. This body was overlooked by the authors who analyzed some of the minerals before. Its presence interferes to some extent with the specific reaction of titannic acid before the blowpipe. Having a strong coloring property, its green color with microcosmic salt in the reducing flame is complementary with the violet color of titannium in the same salt, so that a colorless bead may be obtained, and the presence of the latter metal or of both remains hidden. This was verified by experiment. For the purpose of obtaining the true molecular composition of the light-brown garnet, he had selected a very brilliant and pure crystal of the combination ∞0.202.0 for analysis, reserving a suitable fragment for a microscopic section. He had formed a hypothesis in the course of this examination, about the molecular isomorphism of calcium titannate (perowskite), and calcium iron silicate (garnet), and to prove this, it was necessary to learn the true constitution of the latter molecule. He had obtained in due course, about 6 per cent. of titannic acid, acting very similarly with the problematic oxide, above described. Now it was clear, that this garnet was not a homogeneous compound. The microscopic slide exhibited characters corroborating this assumption. Around an opaque nucleus was found a yellow, transparent substance (garnet) in concentric layers, following the outline of the dodecahedron. The layers separated by dark lines, which dissolved under a high power into a series of opaque particles. The striation resembles the structure of agate. What is the opaque substance? Is it schorlomite (the specific nature of which he doubted), is it perowskite, or is it brookite?

He hoped to be able to answer these questions in time. It was but another instance showing that the results of an analysis from an apparently homogeneous material cannot be utilized for the construction of a trustworthy formula, unless the mineral is examined optically. Those cases are excepted where the atomic ratios are simple, and the affinities untortured.

The death of Joseph H. Dulles was announced.